New Mexico
College of Agriculture
AND
Mechanic Arts.
1892-'93.



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NEW MEXICO

COLLEGE OF AGRICULTURE

— AND

MECHANIC ARTS.

LOCATION:

LAS CRUCES, DONA ANA CO., NEW MEXICO.

CATALOGUE FOR 1892-'93.

AND ANNOUNCEMENTS FOR 1893-'94.

LAS CRUCES, N. M.
RIO GRANDE REPUBLICAN.
1893.

BOARD OF REGENTS.

WILLIAM T. THORNTON, Governor, *Ex–Officio.*

AMADO CHAVES, Sup't of Public Instruction, *Ex-Officio.*

NUMA REYMOND, Las Cruces: term expires 1893.

WILLIAM L. RYNERSON, Las Cruces: term expires 1894.

JOHN R. MCFIE, Las Cruces: term expires 1895.

J. D. W. VEEDER, Las Vegas: term expires 1896.

ROBERT BLACK, Silver City: term expires 1897.

OFFICERS OF THE BOARD.

JOHN R. MCFIE, President.

WILLIAM L. RYNERSON, Secretary and Treasurer.

FACULTY AND OTHER OFFICERS. [1]

HIRAM HADLEY, A. M., President.

AINSWORTH E. BLOUNT, A. M.,
Professor of Agriculture and Horticulture.

JOHN P. OWEN, [2]
Professor of History and Political Science, and in charge of Literature.

ELMER O. WOOTON, B. S.,
Professor of Botany, and in charge of Geology and Physics.

CLARENCE T. HAGERTY, B. S.,
Professor of Mathematics, and in charge of Civil Engineering.

C. H. TYLER TOWNSEND, [3]
Professor of Entomology, Zoology, and Physiology.

AUGUST J. WIECHARDT, M. M. E.,
Professor of Mechanical Engineering.

ARTHUR GOSS, B. S., A. C.,
Professor of Chemistry.

A. E. DAVISSON,
Principal of Preparatory School.

FREDERICK F. BARKER, LL. B.,
Instructor in Languages.

MADAME LOLA DOREGO,
Instructor in Vocal and Instrumental Music.

IDA M. JONES,
Assistant in Preparatory School.

FRANK E. LESTER,
Librarian and College Clerk.

(1) Arranged in order of election as professors, instructors, etc.
(2) Principal of Preparatory School for past year.
(3) Resigned April 15, 1893, to take effect June 30, 1893.

FACULTY COMMITTEES.

FOR 1892-'93.	FOR 1893-'94.
JUDICIARY.	
C. H. Tyler Townsend, *Chair'n.*	J. P. Owen, *Chair'n.*
A. E. Blount,	A. E. Blount
Arthur Goss.	Arthur Goss.
COURSE OF STUDY.	
E. O. Wooton, *Chair'n.*	E. O. Wooton, *Chair'n.*
A. J. Wiechardt,	A. J. Wiechardt.
J. P. Owen.	J. P. Owen.
LIBRARY.	
Arthur Goss, *Chair'n.*	Arthur Goss, *Chair'n.*
E. O. Wooton,	E. O. Wooton.
C. H. Tyler Townsend.	A. E. Davisson.
F. E. Lester, *Ex-Officio.*	
PUBLIC GROUNDS AND COLLEGE FUTURE.	
A. E. Blount, *Chair'n.*	A. E. Blount, *Chair'n.*
J. P. Owen,	J. P. Owen,
C. T. Hagerty.	C. T. Hagerty.
CATALOGUE.	
A. J. Wiechardt, *Chair'n.*	A. J. Wiechardt, *Chair'n.*
C. H. Tyler Townsend.	A. E. Davisson.
C. T. Hagerty.	C. T. Hagerty.
BOARDING.	
C. T. Hagerty, *Chair'n.*	C. T. Hagerty, *Chair'n.*
A. E. Blount.	A. E. Blount.
Arthur Goss.	Arthur Goss.
ENTERTAINMENT.	
J. P. Owen, *Chair'n.*	A. E. Davisson, *Chair'n.*
E. O. Wooton,	E. O. Wooton,
A. J. Wiechardt.	A. J. Wiechardt.

NOTE—The President of the Faculty is *Ex-Officio* member of all committees.

STUDENTS.

COLLEGE.

NAME.	COURSE.	RESIDENCE.
SENIORS.		
Samuel Steel, *	*Ag.*.	Las Cruces.
JUNIORS.		
Bennett, Joseph Francis, Jr., †	*C. E.*.	Las Cruces.
Garcia, Fabian,	*Ag.*.	Mesilla.
Larkin, Ralph Roy,	*Ag.*.	Las Cruces.
McGrath, Lemuel Charles,	*C. E.*,	Lordsburg.
Skidmore, William Hickman, †	*C. E.*,	Las Cruces.
Snow, Oscar Charles,	*Ag.*,	Mesilla.
SOPHOMORES.		
Casad, Jessie Edna, †	*La.*.	Mesilla.
Casad, Thomas, †	*Ag.*.	Mesilla.
Frenger, Numa Charles,	*M. E.*,	Las Cruces.
Kezer, Charles Jacob,	*M. E.*,	Las Cruces.
McFie, Ralph Elmo, †	*M. E.*.	Las Cruces.
Peterson, Albert H.,	*M. E.*,	Las Cruces.
Whitmore, Charles Abbott,	*M. E.*,	San Marcial.
FRESHMEN.		
Ascarate, Edward G.,	*Gen.*.	Las Cruces.
Barker, Millicent Lucy,	*La.*.	Las Cruces.

(*) Deceased March 9, 1893.
(†) Not clear of conditions from the preceding class

NAME.	COURSE.	RESIDENCE.
Bailey, Pearl Homer,	*Gen.*,	Anthony.
Bryan, John Bowman,	*Gen.*,	Las Cruces.
Buchoz, Numa G.,	*Gen.*,	Las Cruces.
Casad, Gertrude,	*La.*,	Mesilla.
Coomer, John B., †	*Gen.*,	Nashville, Tenn.
Dawson, Edith Marian,	*La.*,	Las Cruces.
DeMier, Maggie May,	*La.*,	Las Cruces.
French, Charles Pepper,	*Gen.*,	Las Cruces.
French, Samuel Rodgers,	*Gen.*,	Las Cruces.
Gilmore, Watt,	*Gen.*,	Ft. Stanton.
Gilmore, Mae,	*La.*,	Ft. Stanton.
Gilmore, Ora,	*La.*,	Ft. Stanton.
Gonzales, Josè,	*Gen.*,	San Marcial.
Herron, Mary Katherine, †	*La.*,	Victoria.
Holt, Alfred Moss,	*Gen.*,	Alma.
McGrath, Herbert James,	*Gen.*,	Lordsburg.
McGregor, Helen M., †	*La.*,	Gallup.
Mothersill, Philip Wilder,	*Gen.*,	Engle.
Rhodes, Clarence Edgar,	*Gen.*,	Engle.
Smith, Lillie,	*La.*,	Las Cruces.
Worden, Helen Medora,	*La.*,	Hillsboro.
SPECIAL STUDENTS.		
Barker, F. Cecil,	*Spec.*,	Las Cruces.
Griggs, George Wort,	*Assay*,	Mesilla.
Herbert, Richard Curtis,	*Gen.*,	Ft. Stanton.
Herbert, Guy Hammond,	*Gen.*,	Ft. Stanton.
Potter, Ezra Cornelius,	*M. E.*,	Red Cloud, Neb.
Potter, Edwin,	*Ag.*,	Chicago, Ill.
Rynerson, William Logan,	*Ag.*,	Las Cruces.
Spalding, Keith,	*Ag.*,	Chicago, Ill.
Williams, Arthur Edwin,	*Ag.*,	Las Cruces.

(†) Not clear of conditions from the preceding class.

PREPARATORY.

NAME.	RESIDENCE.
"A" CLASS.	
Ames, David Cecilio,	Las Cruces.
Bennett, Lola Jeannette,	Las Cruces.
Bullard, Nettie,	Pine Springs.
Bullard, George,	Pine Springs.
Casey, Edward Eugene,	Las Cruces.
Coe, Edward James,	Lincoln.
Holt, Elgin Bryce,	Alma.
Holt, Walter Edwin,	Alma.
Hyatt, James Judson,	Pine Springs.
Kezer, Lucy Alma,	Earlham.
Kezer, John Henry,	Las Cruces.
Rynerson, Henry Lemon,	Las Cruces.
Salazar, Jose Antonio,	Taos.
Watson, Oscar,	White Oaks.
"B" CLASS.—FIRST DIVISION.	
Bailey, Tudie,	Mesilla.
Buchoz, Edward Spencer,	Las Cruces.
Carguile, Flora,	Las Cruces.
Gilmore, Ula,	Ft. Stanton.
Holt, Valeria,	Alma.
Hyatt, John Wages,	Pine Springs.
Kennedy, Luke Mark,	Pine Springs.
Lannon, John,	Hillsboro.
Llewellyn, Morgan,	Las Cruces.
Martin, Esther Katherine,	Mesilla.
Peake, Dee,	Mesilla Park.

FIRST TERM.

FRESHMAN.	General.	Ladies'.	Special.	SOPHOMORE.	Agricultural.	Engineering.	Ladies'.	Elective Eng.
STUDY.				STUDY.				
Algebra	5	5		Geom., Pl. 9 w'ks, Sl. 3 w'ks	5	5	5	5
Rhetoric	5	5	5	Physics	5	5	5	5
Word Analysis	5	5	5	Physiology	5			*5
Commercial Arithmetic		*5	5	Descriptive Geometry.		5		
English	1	1	1	Spanish,			5	*5
				English	1	1	1	1
PRACTICE.				PRACTICE.				
Wood Turning.....9	3		3	Mechanical Drawing.....6		3		
Farm Work.....6	2		2	Hort., [Pruning, etc].....9	3			
Music		*2		Physical Laboratory...6	2	2	2	2
Penmanship.....4		1	1	Music or Lit. Reading... 6			2	2
Total	21	19–22	22	Total	21	21	20	20

SECOND TERM.

STUDY.				STUDY.				
Algebra	5	5		Geom., solid, 9 w'ks }	5	5	*5	5
English Literature	5	5		Trig., plane, 3 weeks }				
Spanish	5	5	5	Chemistry	5	5	5	5
Commercial Arithmetic		*5	5	Ancient History	5		5	*5
English	1	1	1	Higher Algebra		5		
				Spanish			*5	*5
				English	1	1	1	1
PRACTICE.				PRACTICE.				
Carpentry and Joinery ..9	3		3	Physical Laboratory.....9	3	3	3	3
Field Work 6	2		2	Mechanical Drawing 6		3		
Book-keeping		*5	5	Animal Husbandry 6	2			
Music 6		*2		Music or Lit. Reading.....6			2	2
Business Writing.....4			1					
Total	21	18–21	22	Total.	21	22	21	21

THIRD TERM.

STUDY.				STUDY.				
Plane Geometry	5	5		Trig. Pl.,7 w'ks, Sph., 5 w'ks	5	5	*5	5
American Literature	5	5		Med. and Mod. History	5		5	*5
Spanish	5	5	5	Botany	5		5	
Commercial Law		*5	5	Mechanics, Practical		5		5
English	1	1	1	Spanish			*5	*5
				English	1	1	1	1
PRACTICE.				PRACTICE.				
Blacksmithing 9	3		3	Chemical Laboratory....15	5	5	5	5
Garden Work.....6	2		2	Graph. Stat. Mech. (Drawing) 10		5		
Floriculture 6		2		Fruit Culture 6	2			
Book-keeping		*5	5	Music or Lit. Reading....6			2	2
Music.....6		*2		Lettering 4		1		1
Lettering.....4			1					
Total	21	20–23	22	Total	23	22	23	24

* One Required.

JUNIOR.	Agricultural.	Mech. Eng.	Civil Eng.	Ladies'.	Elective Eng.	
STUDY.						
Analytic Geometry		5	5		5	
Geology	5		5	5		
Steam, 6 wks; Boilers, 6 wks		5	5			
Stock	5					
Latin				5		
Descriptive Geometry					5_2	
Physiology				5_2		
Surveying	2		2			
English	1	1	1	1	1	
Engineering Journals		1	1		1	
PRACTICE.						
Machine Shop 15		5			5	
Zoology and Comp. Anat. 9	3			3		
Elementary Mach. Design 6		3				
Surveying 9	3		3			
Mechanical Drawing 6					3_2	
Music, optional						
Total	19	20	22	19	20	FIRST TERM.
STUDY.						
Differential Calculus		5	5		5	
Geology	5		5	5		
Systematic Zoology	3			5		
Thermodynamics		5				
Descriptive Astronomy			5			
Latin				5		
Higher Algebra					5_2	
Veterinary Science	5					
English	1	1	1	1	1	
Engineering Journals		1	1		1	
PRACTICE.						
Foundry 15		5			5	
Surveying 15			5			
Dairy Work 12	4			4		
Elementary Mach. Design. 6		3				
Mechanical Drawing 6					3_2	
Practice with Telescope 3			1			
Music, optional						
Total	20	20	23	20	20	SECOND TERM.
STUDY						
Integral Calculus		5	5		5	
Constitutional Law	5			5		
Entomology	5			5		
Horticulture	5					
Botony					5_2	
Steam Engine		5				
Materials of Engineering			5			
Latin				5		
English	1	1	1	1	1	
Engineering Journals		1	1		1	
PRACTICE.						
Patern Making 15		5			5	
Surveying 15			5			
Botanical Laboratory 15	5			5		
Grap. Stat. of Mech. Dr'g 10					5_2	
High Speed Engine Des. 10		5				
Architectural Drawing 6			3			
Music, optional						
Total	21	22	20	21	22	THIRD TERM.

SENIOR.	Agricultural.	Mech. Eng.	Civil Eng.	Ladies'.	Elective Eng.	Elective Eng. Last Year.
STUDY.						
Mechanics		5	5		5	
Agriculture	5			5		
Meteorology	5			5		
Political Economy	5			5		$\dagger 5_4$
Kinematics of Mach		5				5_4
Materials of Engineer'g			5			$\dagger 5_4$
Latin				$\dagger 5$	$\dagger 5_3$	$\dagger 5_4$
Geology					$\dagger 5_3$	
Steam, 6 w.; Boilers, 6 w.					5_3	
English	1	1	1	1	1	
Engineering Journals		1	1		1	1
PRACTICE.						
Surveying 15			5		$\dagger 5_3$	$\dagger 5_4$
Steam Engine Design 10		5				5_4
Landscape Garden'g. 15	5			$\dagger 5$		
El. Mach. Design 6					3_3	
Zool. and Comp. Anat. 9					$\dagger 3_3$	
Machine Shop 9		3				3_4
Mech. Laboratory 6		2	2			2_4
Music, optional						
Total	21	22	19	21	20	21
STUDY.						
Mechanics		5	5		5	
Horticulture	5			5		
Strength of Materials		5	5			5_4
Roofs and Bridges			5			$\dagger 5_4$
Descriptive Astronomy	5_3			$\dagger 5_3$	$\dagger 5_3$	
Higher Algebra				5_2		
Latin				$\dagger 5$	$\dagger 5_3$	$\dagger 5_4$
Geology					$\dagger 5_3$	
Systematic Zoology					$\dagger 5_3$	
Thermodynamics					5_3	
English	1	1	1	1	1	
Engineering Journals		1	1		1	1
PRACTICE.						
Surveying 15			5		$\dagger 5_3$	$\dagger 5_4$
Chemical Laboratory 15	5					$\dagger 5_4$
Valve and Mech. Dr'g. 10		5				5_4
Machine Shop 9		3				3_4
El. Machine Design. 6					3_3	
Mech. Laboratory 6		2	2			2_4
Prac. with Telescope 3	1			1		
Music, optional						
Total	17	22	24	16–17	20	21
STUDY.						
Hydraulics		5	5		5	
Psychology	5			5		$\dagger 5_4$
Roofs and Bridges		5	5			5_4
Mechanics, Practical	5_2			$\dagger 5_2$		
Latin				$\dagger 5$	$\dagger 5_3$	$\dagger 5_4$
Elocution	5			5		$\dagger 5_4$
Steam Engine					5_3	
Entomology					$\dagger 5_3$	
Constitutional Law					$\dagger 5_3$	
English	1	1	1	1	1	
Engineering Journals		1	1		1	1
PRACTICE.						
Botanical Laboratory 15					$\dagger 5_3$	
Steam Engine Design 10					5_3	
Surveying. 6 or 15			2		$\dagger 5_3$	$\dagger 2_4$
Special Designing		3	3			3_4
Mech. Laboratory		3	3			3_4
Architectural Drawing 6					$\dagger 3_3$	
Music, optional						
Thesis	3	3	3	3		3
Total	19	21	23	19	20–22	17–20

† One required Subscripts 2, 3, and 4, refer to Sophomore, Junior, and Senior years, respectively.

Courses of Study.

(1.) A course in Agriculture.
(2.) A course in Mechanical Engineering.
(3.) A course in Civil Engineering.
(4.) A Ladies' course.
(5.) An Elective Engineering course.

During the coming year, the above courses will be taught. In the Freshman year, the General course is the same for all male students. This becomes in the Sophomore year the Agricultural and the Engineering. The latter in the last two years becomes the Mechanical and the Civil Engineering courses.

Departments of Instruction.

DEPARTMENT OF AGRICULTURE AND HORTICULTURE.

A. E. BLOUNT, PROFESSOR.

In this department the purpose is not to make complete farmers, fruit-growers, and stock-breeders—full-fledged and proficient in all lines of practice—but men, intelligent citizens, with correct, rudimentary knowledge so well established that it may serve them as a sure groundwork for future acquirements and future development. Agriculture being the basis of all the industrial pursuits, a wide range of instruction on both general and special subjects is absolutely necessary.

In the outline submitted we recognize the fact that education is always a help to the farmer. He may be more successful as a farmer after a thorough training in any line of study—classical, scientific, or technical—the education only

making more effective the powers of the mind. The best years of his life for college work are the best for acquiring a business knowledge and training.

The course proposes to furnish to all who wish to be farmers, in the true sense of the term, an opportunity to inform and acquaint themselves with the many scientific questions in orchard, vineyard, garden, field, and teachings which their work daily brings before them and to assist them in working out many problems yet unsolved.

During the Freshman and Sophomore years, instruction will be given on the elements of agriculture and of horticulture, the scope of which will include the history and development of agriculture as an art and a science, its relation to other arts and sciences, and to our national prosperity; and on farm crops, planting, cultivating and harvesting, stock, manure, fertilizers, buildings, fences, implements, accounts, buying and selling. Under the head of horticulture, the instruction will include pomology, vegetable gardening, floriculture, and seed growing.

During the Junior year, lectures and instruction will be given on the various breeds of cattle, horses, sheep, swine, and poultry; soils, seeding, irrigation, stock-feeding for flesh and milk; budding, grafting, layering, pruning, care and cultivation of fruit trees, vines, and small fruits.

During the first and second terms of the Senior year, lectures and instruction will be given on rotation of crops, drainage, cereals—their improvement by selection, crossing and care; principles of feeding, milk, butter, and cheese-making; and on landscape gardening, ornamentation with trees, shrubs, flowers, lawns, wind-brakes, and the effects of trees on climate.

DEPARTMENT OF HISTORY AND POLITICAL SCIENCE.

J. P. OWEN, PROFESSOR.

Constitutional Law.—This is a course upon the constitution of the United States. Cooley's Principles will be used as a

text-book, supplemented by lectures. This study occupies a full term of the Junior year.

Political Economy.—This subject is pursued during a full term of the Senior year. Instruction will be given by means of recitations and lectures.

The current practical problems of industrial society are also discussed on the basis of economic principles. Each student will be required to prepare an original paper upon some topic which will be assigned him.

History.—During the second term of the Sophomore year, ancient history is studied. Sheldon's History is used. Mediæval and modern history is studied during the third term of the Sophomore year. Although a text-book is used, the instruction is largely supplemented by lectures and illustrative readings. Considerable attention is given to the various forms of government. The chief object of the course is to inculcate in the student a love for the study of history, and to teach him to form his own conclusions from the facts presented. Students will have access to the following books of reference on the above subjects: The works of Bancroft, Mace, McMaster, Bryce, Cooley, Woolsey, Grote, Rawlinson, Wells, Adam Smith, Mill, Burgess, Carey, Walker, Johnston, Bowen, Perry, and others.

Rhetoric.—Rhetoric is taught to all students during the first term of the Freshman year.

Much attention is given to punctuation, use of capitals, clearness of statement in writing, and neatness of arrangement.

English Literature.—This subject is taught during the second term of the Freshman year, and is followed by American Literature in the third term. This work is supplemented by literary reading, for which the great number of excellent periodicals and literary volumes to be found in the library furnishes the desired facilities.

In the Ladies' and Elective Engineering courses, the literature is continued during the Sophomore year, by a systematic course of reading.

DEPARTMENT OF BOTANY.

E. O. WOOTON, PROFESSOR.

Elementary Botany.—During the third term, Sophomores of the Agricultural and Ladies' courses will devote five recitation periods per week to the study of phænogamic botany, principally. A part of the time will be used in studying briefly the general features of cryptogams, as well as the more important and introductory points of physiological botany.

Plants which are typical of the various grander divisions of the plant kingdom will be analyzed and classified as a part of the class work, and all students will be required to prepare and name a few specimens for the college herbarium.

In this work, Gray's text-book is taken as the guide, and Coulter's Flora of the Rocky Mountain Region is used for analysis and classification.

Advanced Botany.—Juniors of the same courses will spend three periods, five times per week, in the third term, studying the minute anatomy of plants.

For this work, the college is supplied with Bausch and Lomb's compound "Model" microscopes, with magnifying power of from 50 to 300 diameters, as well as books of reference, reagents, microtome, and all other apparatus necessary.

The method of work will be the study, from living and alcoholic specimens, of the simple vegetable cell and all its various modifications, cell contents, and finally the tissue systems of the plant. This will include the simplest as well as the most complex forms of plant-life and will be so arranged as to give the student a good outline view of the whole Vegetable Kingdom.

The intention is to attempt nothing but a good foundation for future work of any special line, leaving to the student the option of carrying on the work, or not, as he may choose.

The design of the course is to arouse interest in and induce careful observation of animate nature around us, and at the same time to teach the student to draw conclusions from observations, and to classify ideas as well as objects.

For the first term's work in botany, the students have access to the department library which contains a large number of valuable books of reference. Among others may be found Chapman's Flora of the Southern United States, Gray's Flora of North America, the Botany of King's Survey of the 40th Parallel, Botany of Wheeler's Survey of the 100th Meridian, Botany of the Mexican Boundary Survey, Botany of the Pacific Railroad Survey, Genera Plantarum, and many other valuable books on organography and systematic botany. For comparative study and reference students also have access to the college herbarium, which now contains specimens from many parts of the United States.

Students in the advanced botany class will find some of the standard works on physiological and histological botany in the library; such as, Sach's on the Physiology of Plants, Strasburger's Manual of Histology, DeBarry on Morphology and Biology of the Fungi, Mycetozoa, and Bacteria; the same author on Comparative Anatomy of Phanerogams and Ferns, Crookshank on Bacteria, and many others.

A fee of one dollar ($1.00) will be charged students of the advanced class to compensate for the wear on the instruments and the slight breakages in this work. Any serious damage done to the instruments which is due to carelessness on the part of the student must of course be made good by him.

Geology.—During the first and second terms of the Junior year, students of the Agricultural, Civil Engineering, and Ladies' Courses will recite five times weekly in geology.

The first term will be devoted to the study of physiographic, structural, and dynamical geology; and considerable attention will be given to the subject of mineralogy in a gen-

eral way. The second term is devoted entirely to the subject of historical geology, and paleontology.

This department is equipped with the beginnings of a cabinet, in which are to be found some very good mineralogical specimens and quite a number of fossils of various geological ages.

Physics.—Sophomores of all courses are required to recite five times per week during the first term upon text-book work in physics. Besides this they have two recitations weekly of three periods each, in which they will perform all the various experiments suggested by the text-book in use.

In the second term of the same year, the work is wholly of a laboratory character—three recitations of three periods each being allotted to this branch.

The work of the first term will consist of the discussion and proof of the laws of matter, dynamics, heat, and sound as given in Gage's Elements of Physics. Considerable attention will be given to the practical mathematical application of the principles deduced.

The time of the second term will be given mainly to the study of electricity, using, as much as possible, in our circumstances, the laboratory method. The subject of light also will be considered during this term, and many experiments will be performed.

The college is at present equipped with considerable physical apparatus, and more will be purchased during the coming vacation, so that students will have ample facilities at their command for this work.

DEPARTMENT OF MATHEMATICS AND CIVIL ENGINEERING.

C. T. HAGERTY, PROFESSOR.

Mathematics.—During the first and second terms of the Freshman year, elementary algebra, embracing the following

subjects will be taught: fractions, simple equations involving fractions, simultaneous equations of two or three or more unknown quantities, involution, evolution, theory of exponents, radicals, quadratic equations, properties of quadratics, ratio, proportion, arithmetical and geometrical progressions, imaginary quantities, interpretation of negative results, and inequalities.

Plane geometry is begun in the third term of the Freshman year and is continued for nine weeks in the first term of the Sophomore year. It is followed by solid geometry, which continues for nine weeks of the second term. The remainder of the year is devoted to plane and spherical trigonometry—ten weeks being given to plane and five to spherical trigonometry. Higher algebra is taught in the second term. In geometry, special attention is given to the demonstration of original theorems and to the solution of original problems.

During the first term of the Junior year, analytic geometry is taught. The second and third terms are devoted to the calculus. Engineering students only are required to take these branches.

The instruction in all the branches of mathematics will be made as practical as possible.

Civil Engineering.—Students who take this course pursue the General Course during the Freshman year, and the Engineering Course during the Sophomore year. This course is designed to make the student familiar with the principal instruments and methods used in land, topographical, city, and railroad surveying. Instruction is given by means of lectures, recitations, field and office work. The student will have practice in the use of the compass, engineer's transit with stadia and solar attachment, engineer's level, plane table, prismatic compass, aneroid barometer, clinometer, optical square, planimeter, and pantograph. Surveying is begun in the first term of the Junior year and is continued to the end of the course. At least one-half the number of exercises in this subject will be field work,

each of which is equal in length to three class periods.

During the first term of the Junior year, students receive instruction in the theory and practice of land surveying. Surveys are made, notes plotted, and areas computed. Some time is devoted to the study of the laws and court decisions relating to boundaries, re-location of lost corners, etc. Students will have practice in determining the true meridian and latitude, by observations of the north star and of the sun. The second and third terms will be devoted to leveling, topographical and city surveying, and additional practice in plane surveying. Topographical maps must be made from the field notes.

Throughout the Senior year, the theory and practice of railroad surveying is taught. It will include problems in simple, reversed, and compound curves; turnouts, earth-works, and economics of location. Students will be required to make reconnoissance, preliminary, and location surveys for a line of railroad; set grade and slope stakes, and calculate the cubical content of excavations. Railroad maps and profiles must be made from the field notes.

In the third term of the Junior year and the first and second terms of the Senior year, instruction will be given in the elements of civil engineering, which will embrace the following subjects: properties of materials used in construction, strength of materials, masonry, framing, bridges, roofs, common roads, railroads, and canals.

DEPARTMENT OF MECHANICAL ENGINEERING.

A. J. WIECHARDT, PROFESSOR.

In this department the various subjects taught have been arranged with a view to the convenience of the student and in such a manner that he may select his studies in one of *five* ways, thus:

1st. He may take the regular Mechanical Engineering course and do the prescribed work in four years.

2d. He may take the regular Mechanical Engineering course, as above; but, instead of completing it in four years, take a longer time for it, by doing less work per week. This course is recommended for the younger students and those who desire to work their way through college. For the above work the student will probably receive the degree B. M. E.

3d. The Elective Engineering course affords the opportunity for a student to take part of the regular Mechanical Engineering course, and such other studies of a general nature as he may desire.* The degree granted for this work will probably be B. S.

4th. If the student chooses to continue, he may take the last year of the Elective Engineering course, and in addition to B. S., he will probably receive the degree B. M. E. The Elective Engineering course seems to be most desirable, and especially fitted, for those students entering at the age of fifteen; for, in addition to the regular work in mechanical engineering, it also provides for a general education, and graduates the student at a more mature and useful age.

5th. A student desiring to take the practical work in the draughting room and shops, may finish in one or two years; and, at the end of that time, be prepared to enter any of the shops of the Territory, and soon earn fair wages as a mechanic. Students will not be allowed to take this work without special permission of the Faculty.

The Mechanical Engineering course aims to educate young men of ability to undertake and successfully work out the ordinary engineering problems. The student's time, will of necessity, be devoted very largely to technical studies; but enough literary work is included to give as broad and liberal an edu-

* For these general studies see the Sophomore and Senior years of this course. pages 10 and 11.

cation as the limited time of the course will permit. The leading subjects taught are: pure and applied mathematics, English, drawing and machine design, modern shop practice, mechanical laboratory practice, and the theory underlying engineering. An outline of the ground covered by pure mathematics and English will be found under their respective heads.

Drawing and Machine Design.—This subject begins in the first term of the Sophomore year, and the work consists mainly of drawing plates in descriptive geometry, the last term of the year being devoted to graphic statics of mechanism. The time assigned to drawing in the Junior year is devoted to a thorough consideration of the elements of machine design, such as fastenings, bearings, pulleys, belts, gears, and connecting rods. The design of a one hundred horse-power high speed steam engine, problems in valve diagrams, and special machine designing, comprise the work on this subject in the Senior year. The draughting room, as well as the shops and engineering laboratories, are at all times conducted, as nearly as practicable on the basis of an engineering establishment.

Shop Practice.—It is not the object of this part of the course to produce skilled mechanics, although much may be done in this direction by special work. It will, however, embrace sufficient instruction in the trades of the wood-turner, carpenter and joiner, blacksmith, moulder and founder, pattern-maker, and the machinist, to enable a graduate of this department to intelligently superintend and successfully direct work depending upon a knowledge of these trades. Wood-turning, and carpentry and joinery, being preparatory to pattern-making, involve progressive exercises, illustrating the use and care of edge tools. The final work in these two subjects will be the production of a useful or ornamental article, requiring joinery and wood-turning in its construction, and illustrative of the student's proficiency in these trades.

Blacksmithing.—In the blacksmith shop the student is aught the care and management of his fire; forging and welding of iron; forging, annealing, hardening, and tempering of steel. The production, by the student, of a set of lathe and vise tools, to be used later in the machine shop, constitutes the final work in this trade.

Foundry.—In the foundry, instruction is given in moulding materials; moulding in green sand, dry sand, and loam; core-making, mixing and melting of metals, and cupola management. In addition to making several castings for future use in the machine shops, the student is required to make a difficult or ornamental casting in bronze as the final work.

Pattern-making.—The student, having taken wood-turning, carpentry and joinery, and foundry work, is now fairly well prepared to commence pattern-making; and, from his foundry experience, he knows what it is to have a well or poorly constructed pattern. This work will consist of a carefully selected set of exercises, designed to bring out the principles underlying the pattern-makers' trade; but the student stands ready at all times to assist the Seniors in the construction of patterns for their "graduating piece." In the assignment of Juniors to this work, selection will be made from the most skilled and careful members of the class.

To test the student's knowledge of pattern-making and foundry work, he will be examined on several blue-prints of machine castings.

Machine Shop.—Machine tool work includes instruction at the vise, where the student finishes a pair of riveted calipers and a hammer, both of which, together with his center punch, and chisels, now used for the first time, were made in the forge shop. After a few additional exercises at the vise, the student begins work on the machine tools, which consists of exercises so designed as to exhibit the chief uses of the lathe, planer,

drill-press, milling-machine, shaper, and hand lathe. This work occupies the student's time in the shop until the second term of the Senior year. By this time, if a diligent student, he has sufficiently mastered these tools to begin his "graduating piece," the final work in the shop. Seniors desiring assistance from the Junior pattern-makers may, on receiving permission from the head of the department, obtain the experience of superintending shop-work, if it is thought to be of advantage to both classmen. Provided the "graduating piece" is finished and accepted before the end of the year, the remaining time may, by special permission, be devoted to advanced work of an engineering nature.

Mechanical Laboratory Practice.—This work is begun by the study of the methods and means of testing the materials of engineering, the performance and efficiency of injectors, boilers, pumps, and engines. The calibration of instruments used by the engineer is followed by tests of strength of materials; a study of the theory being carried on at the same time in the class room, the student thus proving the results of theory by actual tests. Duty and efficiency trials of pumps, engines, etc., complete this work; the student being directed to return reports in accordance with well established engineering practice.

Theoretical Engineering.—The application of mathematics to practice is considered under the subject of boilers—their strength, construction, and efficiency: kinematics—the nature and equivalence of mechanism, due attention being given to the important applications of this subject to machine design; the steam engine considered as a transformer of energy—its design, construction, and efficiency. Strength of materials, analytical mechanics, and thermodynamics complete the required work of the course.

Mechanical Engineering Equipment.—Although scarcely two years old, this department is provided with five iron wood-turning lathes all of different design, thus exhibiting the various

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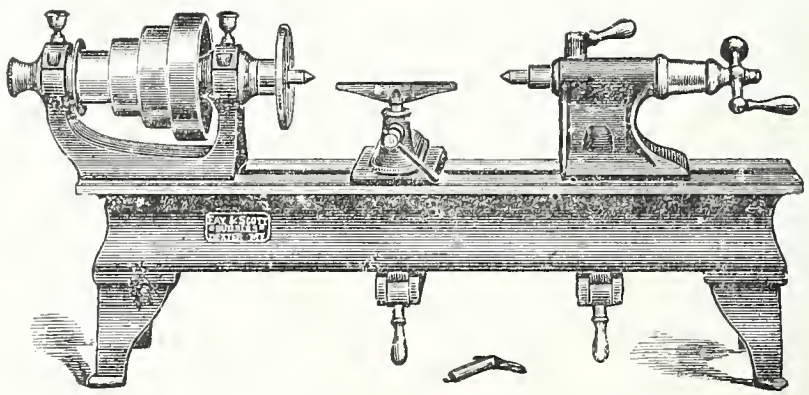
Mechanical Engineering Equipment.—Although scarcely two years old, this department is provided with five iron wood-turning lathes all of different design, thus exhibiting the various

types of the best modern machines of this class; also one universal sawing machine, and one forty by six inch grindstone. The above are driven by an eight horse-power high speed vertical engine, supplied with steam from a twelve horse-power water tube boiler, using petroleum fuel. Each student is required to run this engine and boiler as a part of his shop practice. Six cabinet-makers' benches, twelve sets of carpenters' tools, and a well furnished tool room complete this part of the apparatus, all of which is temporarily located in confined quarters, in the basement of the main college building.

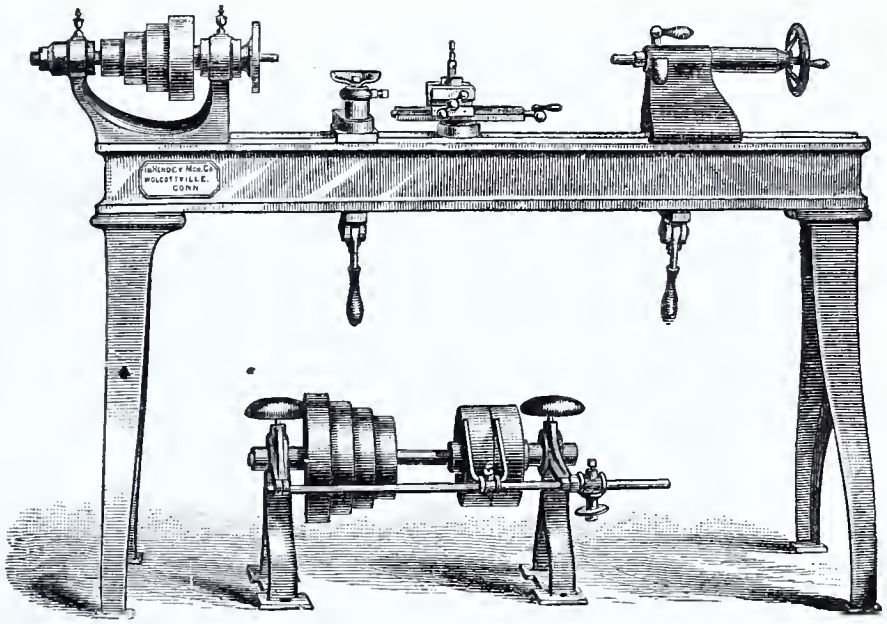
It is proposed to increase this equipment by the addition of a forge shop and iron foundry for next year, and later by a machine shop and mechanical laboratory.

In the draughting room, accommodations are furnished for six students at a time, and a good start has been made in the collection of drawings of different classes of machinery. A superior blueprinting frame, together with the necessary drawing boards, etc., complete the list of the apparatus so far provided for this work.

The following cuts may give a better idea of the scope of the work attempted, and will illustrate a *few* of the machine tools already provided and described above:



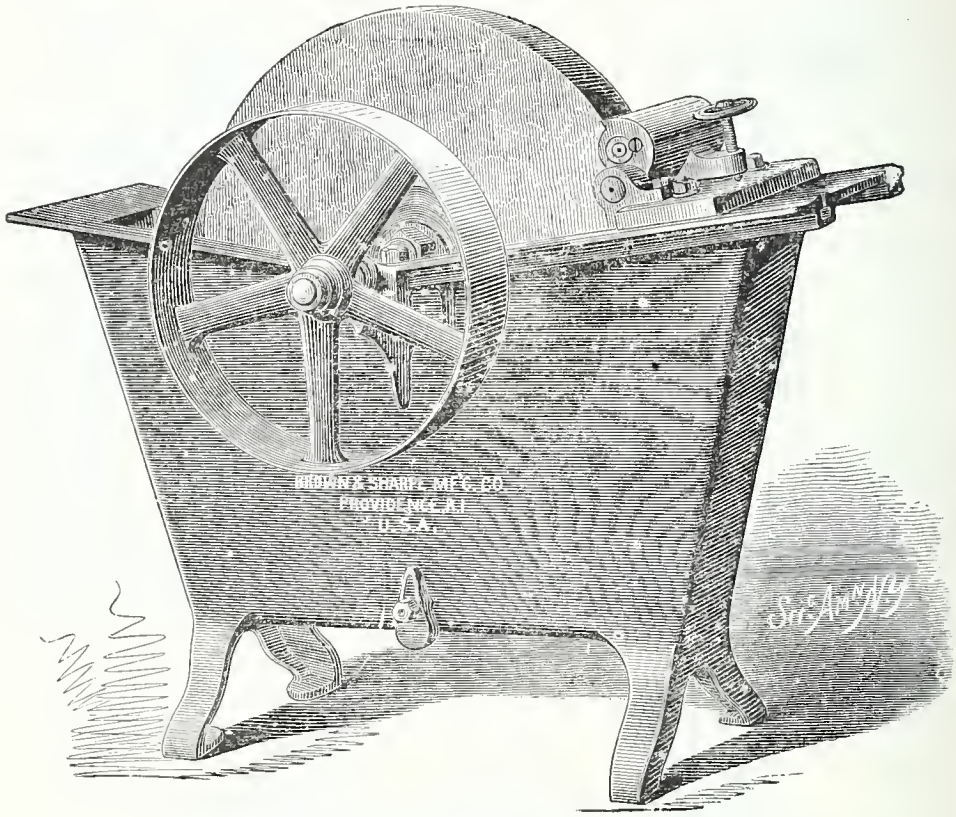
EIGHT INCH FAY & SCOTT LATHE.



EIGHT INCH HENDEY LATHE.



NINE INCH REED LATHE



FORTY INCH GRINDSTONE.

DEPARTMENT OF CHEMISTRY.

ARTHUR GOSS, PROFESSOR

The prescribed course in chemistry, taken by all regular college students, occupies the second and third terms of the Sophomore year. During the second term of the Senior year, students in the Agricultural Course will be given instruction in advanced chemistry as described below.

The work during the second term of the Sophomore year, will consist of a study of the fundamental principles of the science as outlined in Remsen's Chemistry. This work will be supplemented by occasional excercises in the laboratory by the class, and by the performance of many experiments before the

class by the professor in charge. The time required of the students this term, besides that necessary for the preparation of lessons, will be one hour daily.

During the third term of the Sophomore year, three hours daily will be spent in the laboratory in the study of qualitative analysis. Each student will be provided with a complete set of apparatus and reagents by means of which any ordinary compound may be analyzed. The student will thus learn by actual practice the various methods of separating the different elements. Hill's Qualitative Analysis will be used as a guide in this work.

A laboratory fee of five dollars ($5.00) will be required of each student, to pay for chemicals and gas consumed during this term. A deposit of five dollars ($5.00) will also be required of each student, to cover breakage of apparatus. The balance from this deposit, after deducting the cost of apparatus broken, will be refunded at the end of the term.

During the second term of the Senior year, students in the Agricultural Course will spend three hours daily in the laboratory in chemical work. Methods of quantitative analysis, relating directly to agricultural subjects, will be studied during this term. The work will be supplemented by the reading of topics in standard publications on agricultural chemistry by the students, and by occasional lectures before the class by the professor in charge. Among others, the following subjects will be touched upon: the composition of soils, fertilizers, irrigating waters, alkali, feeding stuffs, and the relation of plants and animals to the soil. No particular text will be used in this work. The time required will be three hours daily during the term.

The fees for this term will be the same as for the third term of the Sophomore year.

Equipment.—During the past year the equipment in the chemical department has been largely increased. Two rooms and

a smaller store room, in the basement of the main building are at present used for the chemical work. A seventy-five light gasoline gas machine is now in successful operation thus furnishing an adequate gas supply for this department. The room formerly used for the chemical laboratory has been entirely refitted and now has besides a sink, fume closet, and furnace table, two well constructed working desks. These desks are supplied with gas and water pipes, drawers and lockers for apparatus, and racks for reagent bottles. Students are supplied with a full set of apparatus for laboratory work. This includes, among other things, beakers, test tubes, gas burners, porcelain dishes, platinum foil and wire, ring stands, test tube racks, spatulas, tongs, cobalt glasses, filter stands, funnels, and filter paper.

Another room has been fitted out with special reference to the accommodation of the Experiment Station work. This room contains: a sink, a work desk which is supplied with gas, water, and an air exhaust pipe for rapid filtration, a commodious hood to carry off noxious gases, an apparatus for the determination of nitrogen by the Kjeldahl method, a titration shelf and system of burettes, a balance table supported on posts driven into the ground, an automatic still for the preparation of distilled water, and other pieces of apparatus.

The department also possesses, among other things: a Becker's analytical balance, a Troemner's solution balance, a plate and rubber, mill and set of perforated millimeter sieves for sampling, a Hoskins' gasoline furnace, crucibles, scorifiers, cupels, tongs, etc., for the assay of ores; a Bunsen's spectroscope, Scheibler's polariscope, and about three hundred dollars worth of platinum ware.

DEPARTMENT OF ENTOMOLOGY, ZOOLOGY, AND PHYSIOLOGY.

C. H. TYLER TOWNSEND, PROFESSOR.

Entomology.—The regular course in entomology occupies the third term of the Junior year, and will be presented in

three topics, as follows: systematic entomology, or the classification of insects; natural history, metamorphosis and habits, with special reference to economic entomology, or insects injurious to agriculture and horticulture, and the remedies to be used against them; and the collecting and mounting of specimens. Each student will be afforded practice in the use of characters employed in classification, and will be required to identify several insects in each order by means of analytical tables. In addition, every student will be required to make a collection of a certain number of species in any one or more orders, and will be instructed in the proper methods of mounting. Instruction will likewise be given in the use of the microscope and the manipulation of apparatus. A hand lens of good field and moderate power, and another of higher power will be necessary in this study.

Hyatt and Arms' Insecta, and Packard's Entomology for Beginners, are used in conjunction as text-books. They are more or less supplemented by lectures, by use of the college collection of insects, and by a large and valuable stock of books of reference.

Zoology.—Zoology is treated under the heads of comparative anatomy; and systematic zoology, or classification according to structure and embryonic development, together with the habits and geographical distribution of animals. It is divided into two terms of required work, occupying the first and second terms of the Junior year. The first term is entirely occupied with dissections of the various types of the animal kingdom, and the student is required to keep careful notes and drawings illustrative of his work. Dissection of the higher animals is so planned as to demonstrate homologies in the anatomy of the vertebrates, and students are required to prepare mounted slides of tissues for the microscope. The second term is devoted entirely to systematic zoology, in which the most approved scheme of classification is thoroughly studied. Some

practice is given in the identification of species, and a certain amount of time is devoted to a consideration of economic zoology.

Colton's Practical Zoology is used as a guide in the first term's work. Orton's Comparative Zoology is used as the text-book during the second term. The scheme of classification, as there stated, is supplemented by reference to Claus and Sedgwick's text-book. The value of the student's work in this subject is greatly enhanced by a very complete set of books of reference for the zoological laboratory.

Physiology.—This study occupies the first term of the Sophomore year, and is pursued with the aid of a text-book. The subject matter of the recitations is illustrated by means of charts, models, and a mounted human skeleton. The students will have the opportunity to examine prepared slides of various tissues of the human body under the microscope, and will be given a chance to test their skill in the preparation of new slides from the tissues of the lower animals. One period per week, or its equivalent, is spent on the dissection of the dog, as a practical basis of the study of anatomy and physiology.

Martin's Human Body (Briefer Course) is used as a text-book, and Howell's Dissection of the Dog is used as a guide in dissection. The study of this subject is greatly facilitated by the Bock-Staeger set of 28 anatomical models of the human body which this department possesses.

Equipment.—The department is furnished with a very full and admirably selected library of standard works on the above subjects. Among these may be mentioned full sets of the Proceedings and Memoirs of the Boston Society of Natural History, Transactions of the American Entomological Society, Edwards' Butterflies of North America, Standard Natural History, Macquart's Dipteres Exotiques, Rolleston's Forms of Animal Life, Claus and Sedgwick's Zoology, Landois and Stirling's Human Physiology, Gray's Anatomy, Mivart's Cat, Wilder and

Gage's Anatomical Technology, and the works of Darwin, Huxley, Packard, and many others. The department possesses a fine Queen's No. 3 New Model Acme microscope, fitted with glass stage, iris diaphragm, triple nose-piece, objectives, and all accessories; together with a complete set of instruments and materials necessary for preparing, staining, and mounting objects or tissues. Drawing instruments and materials have also been provided for doing the very best class of original work.

The college collection of insects fills a large number of cabinet boxes and is rapidly increasing. This does not include many vials of alcoholic specimens, mostly larval stages. The whole is properly classified and arranged. All of this material was collected during the past two years, and its value is greatly enhanced by the very full and careful notes that have been kept upon it. Full appliances for collecting and mounting insects are on hand. Fifty cabinet boxes and a large number of vials and glass jars of all sizes have been procured, as well as cork, pins, setting boards and needles, labels, cyanide boxes, naphthaline cones, apparatus for blowing caterpillars, and all other necessaries.

The physiological and zoological apparatus includes dissecting pans for zoological work, cannulas and syringes for injecting arteries and veins, full sets of dissecting instruments; and models, charts, and a mounted human skeleton for the study of physiology.

DEPARTMENT OF LANGUAGE.

F. F. BARKER, INSTRUCTOR.

Spanish.—The relations existing between the United States and the Spanish-American states and provinces are already very important. We believe that these relations are to become, at no distant date, much more important. To Americans, commercially speaking, no other modern language possesses a value

equal to that of the Spanish. Therefore, besides the equitable portion of time assigned to this branch in the regular courses of study, students who promise well in this branch will be permitted to elect to pursue the Spanish to a higher degree of proficiency.

Latin.—The study of Latin is compulsory in the Junior year of the Ladies' course and it stands as an optional subject in the Senior year of that course. In the Elective Engineering course it is optional during the last two years. Men not in this Elective course, and ladies in their Freshman or Sophomore years will be allowed to take up Latin only by special consent of the Faculty.

The aim of this course is to awaken an interest in the writings of the best Latin authors, and to arouse a fuller appreciation of the niceties of the English language, by a study of its etymological connection with the Latin. Some attention will also be given to the private life existing in ancient Rome, as well as to general questions relating to the mythology, literature, and political history of the Roman people.

A student who has passed through the course and is desirous of entering one of the strictly classical colleges, will be in a position to take the required entrance examination without further study.

DEPARTMENT OF MUSIC—VOCAL AND INSTRUMENTAL.

MADAME LOLA DOREGO, INSTRUCTOR.

Piano.

1st Grade.—Touch-Technic and Finger Exercises, Schmidt; Loeschorin's Book of Studies, No. 1; Diabelli's Book of Studies, No. 1 (four hands).

2d Grade.—Urbach's Instructor; Wels' Indispensable Scales and Chords; Schmidt's Finger Exercises, Nos. 2 and 3; Czerny's Etude de Velocite, Books Nos. 2 and 3.

3d Grade.—Urbach's Instructor continued; Wels' Scales and Chords continued; Cramer's Complete Advanced Studies; Heller's Melodious Studies, Books Nos. 1, 2, and 3; Gradus ad Parnassum, by Muzio Clementi.

Vocal.

1st Grade.—Breathing exercises and voice culture; Mason's Tonic Effects (for class study); Bassini's Art of Singing, Part 1st, for soprano, mezzo soprano, and tenor voices; Abt's Singing Tutor, for contralto, baritone, and bass voices.

2d Grade.—Bassini's Art of Singing, Part 1st, continued; Concone's Vocalizations, Book No. 1; Abt's Singing Tutor, continued.

3d Grade.—Bassini's Art of Singing, Part 2d; Concone's Fifty Vocalizations, Book No. 2; Abt's Singing Tutor, completed.

Song and piano recitals are given every two months for the benefit of scholarships in music.

Music is not a part of required courses of study. It is taught for the accommodation of those desiring it, and for it a moderate extra fee is charged. We confidently recommend the instruction as being of the highest order. Those desiring to make a specialty of music can find no better opportunities than at this college.

COMMERCIAL BRANCHES.

Although it may be questionable as to whether or not instruction in branches that usually belong to a commercial course should constitute a legitimate part of the work of this college, the demand for such instruction is such that under the head of "Special Course," provision has been made for it. During the first term of the Freshman year, students taking

this special course will have commercial arithmetic and penmanship. During the second term they will continue commercial arithmetic, business writing, and begin book-keeping. The knowledge gained in this term will be sufficient to give all students an intelligent understanding of book-keeping, and enable many of them to practically apply it in business life. But those who desire to fully equip themselves for the duties of the counting-room, will continue during the third term to pursue advanced book-keeping. They will also have a course in commercial law and a training in lettering. The instructors in these branches are thoroughly practical men, and students will be trained for practical duties.

It will be noticed that stenography and type-writing are not named. Although no arrangements have been made for teaching these, it is hoped and believed that if the demand for these justifies, this demand will be satisfactorily supplied.

General Information.

Requirements for Admission.—To enter the Freshman class of the college, students must be able to pass a satisfactory examination in reading, spelling, arithmetic completed—including the metric system of weights and measures, algebra as far as fractions, English grammar, U. S. history equivalent to that contained in any good text-book on this subject; descriptive geography, and hygiene as required by the U. S. law for territories.

Students who can satisfactorily pass the above examination are well equipped for either the ordinary duties of life, or to enter successfully upon the college course. Without this foundation they cannot succeed in the college. Therefore, both in the interest of the student and the college, we shall insist that this preparation be thoroughly made.

All applicants for admission to the college must be at least fifteen years of age, and must furnish satisfactory evidence of good moral character. No person known to indulge in intoxicating drinks or to visit gambling houses will be received.

Reduced Railroad Fares for Students.— Arrangements have been made with the Atchison, Topeka & Santa Fè, and the A. & P. Railroad Companies, by means of which students who have paid full fare in coming to the college are returned for one-third fare. This reduced return fare will only be given when a student returns at the end of a term. It will not be given at other times. Notice particularly how to obtain this reduced fare, and comply with the instructions to the letter. When you buy your ticket to come to the college, if you pay full fare, explain to the agent where you are going, and ask him to give you a receipt for the amount you pay him. Preserve the receipt and bring it with you. When you desire to return, it will be the essential thing in securing for you the one-third return fare. Only those who pay full fare on coming will be benefitted by this arrangement. We hope arrangements will be made with the other railroads in the territory for similar accommodations.

How to Enter the College.—The post-office of the college is Las Cruces, New Mexico. This is also the general freight and express office for the college; but Mesilla Park Station on the A., T. & S. F. R. R. is nearer the college, and more convenient for those who have no occasion to visit Las Cruces. There is no hotel at Mesilla Park.

Strangers will find it more convenient to stop at Las Cruces, and go temporarily to one of the hotels. They should then report to the president, who will assist them in securing board or finding other accommodations. By all means be on

hand for the entrance examination and the first recitations. A single day's absence at this part of the term may cause the student and the college much trouble. Having passed examinations satisfactorily, call on the president, who will assign you to your classes, and inform you in writing what fees you must pay and what books you need. Next, call on the college clerk, pay your fees, get your receipt, and draw your books.

Text-books and Stationery.—As the college is distant about two miles from any store dealing in these articles, it has been found necessary, for the accommodation of students, to carry at the college a small line of stationery, such as paper, pencils, pens, etc., which are sold to students, for cash only, at a very small profit.

Text-books and some other materials will be furnished by the college. Either they will be sold to students (invariably for cash), at actual cost, or they will be loaned. Each student will be required to deposit, in advance, the sum of $5.00, which will be credited to his account on the college books, and made a special deposit of in the bank. Against this sum will be charged all unreasonable damages done to books or other property, or losses sustained by the student's neglect to properly account for books that have been loaned to him. At the close of the year, or when said student withdraws from the college, the balance will be returned to him. This deposit fee may be increased if circumstances and justice seem to demand it.

Length of Terms.—The college year is divided into three equal terms of twelve and a half weeks each.

The first term begins on the last Wednesday in August, and ends on the Friday before the last Wednesday in November.

The second term begins on the Monday before the last Wednesday in November, and ends on the first Tuesday in March.

The third term begins on the first Wednesday after the

first Tuesday in March, and ends on the first Friday after the last Saturday in May.

Holiday vacation of two weeks begins on the Saturday before the last Monday in December, and ends on the first Sunday after the first Saturday in January. All legal holidays will be observed.

Examination of new students for the purpose of classification will be held on the Tuesday before the last Wednesday in August, at 9 a. m. All applicants for admission, and all former students who were not present at the regular term examination, or who failed to make the grade and desire another examination, should present themselves at this time promptly.

Class Periods and Exercises.—The following definition of an "exercise" is copied from the rules adopted by the faculty: "An exercise shall consist of one lecture or recitation; one essay, oration, or declamation; two hours of drawing; and three hours of laboratory, shop-practice, or field work."

A college hour consists, for the present, of fifty minutes, and is equivalent to a class period.

In the tabulated statements of the courses of study, on pages 10 and 11, the figure to the right of any subject signifies the number of exercises per week in that subject.

Expenses.—Entrance fee, each year, $3.00; deposit as guarantee of proper care of books, apparatus, and other property, $5.00; this will be returned when the student withdraws from the college, provided there are no legitimate charges against him. Sophomore and Senior students in chemical laboratory, to pay for chemicals and gas consumed, $5.00 each; also a deposit of $5.00 to cover breakage. (See Chemistry, page 27.) Junior students in botanical laboratory, $1.00; students taking shop-practice will pay for materials used, each term, $3.00; students in instrumental and vocal music, per term, $10.00; for use of horse-stalls, 25 cents per term.

Students who are not citizens of the United States, in addition to the entrance fee of $3.00, and the deposit fee of $5.00, will be charged $50.00 per year for tuition, payable, one-third each term, in advance.

All fees must be paid in advance.

Summary of Expenses.

Entrance fee, each year,	$ 3.00
Deposit. as security for damage, etc.,	5.00
Music, vocal or instrumental, each, per term,	10.00
For use of horse-stall, single, per term,	.25
Advance students in botany, per term.	1.00
Sophomore and Senior students in chem. laboratory, fee,	5.00
Deposit to cover breakage in chem. laboratory,	5.00
Students in mechanical engineering, for material, per term,	3.00
Students not citizens of the United States, per year,	50.00

Text-books loaned free.

Fees must be paid in advance.

How to Withdraw from the College.—If you have occasien to withdraw from the college, call on the president and make your arrangements with him. He will see that your accounts, of every kind, are properly adjusted, proper records made of your work, whatever money may be due from your credit deposit refunded, and so arrange your records that your manner of withdrawal shall not stand in the way of an honorable discharge.

Students who leave without having satisfactorily adjusted all these matters will not be entitled to an honorable dismissal.

General College Equipment.—The tract of land on which the college buildings stand contains 250 acres. Of this 100 acres is of the finest bottom land under irrigation, and the remainder is mesa land. The whole will be used for experimental purposes in connection with the experiment station.

The buildings consist of: 1. An elegant two-story and basement brick structure with stone trimmings and massive

stone foundation. It contains thirteen beautiful and commodious rooms and an elegant hall capable of seating a large audience. The building is heated throughout by means of hot-air furnaces, and is supplied with gas. The rooms are furnished well; blackboards from the slate quarries of Pennsylvania; students' desks of solid antique oak; library furniture, patterned after that of the Chicago public library; chemical, entomological, and mechanical laboratories fitted up with the most approved appliances; and water throughout the building. 2. Outbuildings, feed-rooms, and horse-sheds. These are used to accommodate the horses of those students who ride to the college. 3. A large and commodious warehouse for machinery, etc. 4. A pump-house, with machinery for pumping water from a system of six wells for the irrigation of the college campus, which, being higher than the college farm, can not be irrigated from the present system of acequias. The college has a beautiful library and reading-room, containing a fine selection of books, and several sets of cyclopædias and different dictionaries; a large number of leading magazines; scientific, literary, agricultural, and horticultural periodicals and papers, and many of the Territorial papers. kindly furnished to the institution.

Board.—As yet, the college can do nothing at furnishing board. Students have heretofore found board in private families at reasonable rates, and it is hoped and believed that they will continue to find ample accommodations of this kind. It is the universal testimony of educators that homes in private families are the very best for students. Some take rooms and board themselves at reduced cost. This often works very satisfactorily. Boarding clubs may be formed by students.

Cost of Board.—During the past year, the price of board with room has been from $16 to $20 per month. Occasionally, where one person occupied a room alone, it has been $25 per month. Where students propose to furnish their own rooms, they should provide for this before leaving home. The freight

on such articles as may be needed, and can generally be spared from home, is very light. To either buy or rent is not economical. Within reach of the college building, are houses for rent at reasonable prices. Many families have moved to the valley and resided in these during the school year on purpose to give their children an opportunity to attend college. Where practicable, this plan is recommended; perhaps no other way is so satisfactory.

Labor for Students.—Although we do not recommend any student to depend entirely on earning sufficient to pay his expenses through college, it is true that some young men have more than made the college expenses during the past year. These have always stood highest in scholarship and deportment. About the building, on the farm, and in the shops, there is always work to be done, and the policy is to give it to students in preference to any one else. There can be no question that those students who are willing to work during their hours for recreation, will become the men and women who move the world.

Politics and Religion.—That pupils may become loyal and devoted members of our great nation, it shall be one purpose of the college to instill into their minds correct ideas of true patriotism and the duties of good citizens. Patriotism is one thing; partisanship is another, and may be a very different thing. While the former will be cultivated by all proper means, the latter will not be allowed in connection with the work of the college.

No culture is valuable that is not founded upon, and accompanied by good moral character. By almost universal assent, moral character is believed to have its foundation in the cardinal principles of the Christian religion. These will ever receive the high respect to which they are entitled, but sectarianism in any form will not be tolerated. All forms of religious belief will be respected, and Catholic and Protestant, Jew and Gentile, will here find a hospitable welcome, and a home in which they will be treated as honored guests.

Preparatory School.

The facilities for obtaining an elementary education in New Mexico having heretofore been somewhat limited, it has been found necessary to connect with the college a Preparatory School.

It is the intention to regularly raise the standard of this school by gradually dropping the lower grades until none shall be retained except the A class.

During the coming year, there will be two grades. The following is the course of study for the two years:—

B Class.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Arithmetic, pp. 111 to 155;	Arithmetic, pp. 155 to 200;	Arithmetic, pp. 200 to 245;
Grammar, Less. 1 to Less. 40;	Grammar, Less. 40 to 65;	Grammar, Less. 65 to 89;
Geography,	Geography,	Geography, complete;
Fourth Reader,	Fifth Reader,	Fifth Reader,
Spelling,	Spelling,	Spelling,
Drawing, Book 5;	Drawing, Book 8;	Drawing, Book 9;
Writing,	Writing,	Writing,
Declamation.	Declamation.	Declamation.

A Class.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Arithmetic, pp. 245 to 290;	Arithmetic, pp. 290 to 335;	Arithmetic, pp. 335 to end;
History,	History, complete;	Algebra,
Grammar, complete;	Composition,	Composition,
Spelling,	Spelling,	Spelling,
Drawing, Book 10;	Drawing, Book 11;	Drawing, Book 12;
Fifth Reader,	Fifth Reader,	
Writing,	Writing,	Writing.
Declamation.	Declamation.	

Text Books.

Arithmetic—Thomson's.
Grammar—Reed & Kellogg's.
Geography—Barnes'.
History—Eggleston's.
Reader—Appletons'.
Hygiene—Barnes'.
Drawing—White's.
Spelling—Reed's.

Pupils who can not enter one of these classes will not be received. It has been thought best not to receive any pupils under the age of fourteen, unless said pupils be under the care of a parent or guardian. The pupils of this school have the same library and lecture privileges that the students of the college have, and are governed by the same rules.

Graduates of this school are granted certificates which admit them to the Freshman class of the college.

To guide students somewhat in their preparation, the following suggestions are offered: In arithmetic, pay particular attention to greatest common divisor; least common multiple; the fundamental processes in common and decimal fractions, especially division of decimals; percentage and its applications; true and bank discount, proportion, square and cube roots, and the metric system.

In grammar, learn the difference between simple, complex, and compound sentences; analyze each kind, and know well the difference between the object and the attribute complements; be able to use capitals and punctuation marks in simple exercises, and be more anxious to use language correctly, than to recite definitions and rules.

In United States history, get clear notions of the discoveries, explorations; early struggles of the colonists; revolutionary war—its causes and results; principal events of the several administrations; causes, events, and results of the civil war, and

the important events that have occurred since it took place. Learn thoroughly important facts rather than a minute detail of minor matters.

In algebra, the work will begin with the study of Milne's High School Algebra, and will continue through addition, subtraction, multiplication, division, factoring, highest common divisor, and least common multiple.

By all means strive to be a good speller.

Students and patrons often importune teachers to admit applicants to advanced standing, even though it is evident that the pupils under consideration are deficient in preparation. Teachers, being desirous of pleasing when they can, often yield to these importunities and grant the supposed favor. Long experience convinces us that all parties concerned make a great mistake. Pupils enjoy what they can comprehend, and dislike what is beyond their ability. Education is a growth. It can be forced abnormally with no better results than the young oak can. Good preparation insures good progress, happy times, and satisfactory results. Deficient preparation breeds discouragement, stimulates irritability, makes the student dissatisfied with himself, his teachers, and the school; and, in the majority of cases, causes him to leave school, and pass his life ignorant and without culture. Therefore, please be anxious and willing to patiently prepare before seeking admission to the Freshman class.

College Societies.

Cordeagian.—This young ladies' literary society was organized September 18th, 1891. Its motto is "*Vestigia nulla retrorsum.*" It meets every Friday afternoon, and the exercises

consist of debates, essays, declamations, music, poetry, criticisms, and impromptu speeches. The officers are:

Ida M. Jones,	President.
Mae Gilmore,	Vice-president.
Helen M. Worden,	Rec. Secretary.
Helen M. McGregor,	Cor. Secretary.
Edith Dawson and Jessie Casad,	Critics.
Mary Herron,	Treasurer.
Maggie May DeMier,	Librarian.

Columbian—. The young men's literary society of the college was organized October 25th, 1891, under the name of Alpha Chi. At the opening of last year this was changed to Columbian, and under this name the society has made steady and prosperous growth. The object of the society is to promote and encourage conscientious and practical literary work by discussions, papers, and such other exercises as the committee on programme may prescribe. The requirements for admission to the society are that members must be students of good standing in the college. They must also pay an entrance fee of one dollar and dues of fifty cents each succeeding term. Regular meetings are held on Friday afternoon of each week. The society gives frequent public entertainments, which, during the past year, have been largely attended and highly successful.

The *New Mexico Collegian*, the first and only college paper in the Territory, is published by this society, the first number of which was issued in February, 1893. The *Collegian* is published on the 15th of each month during the College year, and is controlled by a managing committee of five members of the society. Its aim is to be broad, practical, both non-sectarian and non-political, and to further the interests of both college and society. as well as of education generally. The subscription price is one dollar a year. Sample copy will be sent to any address upon application.

College Senate.—The College Senate is an organization in which all the students of the college are required to take part. Its purpose is that of acquainting the students with parliamentary rules, impromptu and public speaking, and methods of introducing and passing bills in the U.S. Congress. So far it has proved very beneficial, and the students have shown a marked interest in all its proceedings. The officers are as follows:

Prof. E. O. Wooton,	President.
Prof. J. P. Owen,	Vice-president.
Mae Gilmore,	Secretary.
Lemuel C. McGrath,	Clerk.
Guy H. Herbert,	Sergeant-at-arms.

The Agricultural Experiment Station.

BOARD OF CONTROL:

BOARD OF REGENTS OF THE COLLEGE.

STATION STAFF.[1]

Hiram Hadley, A. M., Director.
Ainsworth E. Blount, A. M., Horticulturist and Agriculturist.
Elmer O. Wooton. B.S., Botanist.
C. H. Tyler Townsend, Entomologist and Zoologist.
Arthur Goss, B.S., A.C., Chemist.
Frank E. Lester, Clerk and Stenographer.
Harvey H. Griffin, B.S., First Assistant to Agriculturist and Horticulturist.
Watt Gilmore. Assistant in Meteorology.

1. Arranged in order of election.

By the congressional act of 1887 a "department" of agricultural colleges was endowed, having for its purpose the performing of experiments of value to agriculture and horticulture, and the diffusing of valuable information among the people.

This department of the college is in successful operation. The farm consists of ninety acres of excellent land under irrigation, and a much larger amount of mesa land. At a great outlay of labor, the former has been graded to an almost perfect surface.

A great number of valuable horticultural and agricultural experiments are in process of testing, and more are being constantly begun. During a large portion of the year, students have opportunities to labor on this farm, thus enabling them to defray a considerable portion of their expenses. Besides this, they are under the direct guidance and instruction of educated horticulturists and agriculturists of large experience. This alone is a valuable consideration.

Of the mesa land, thirty acres have been cleared of mesquite and put into good condition for experimentation. A portion of this is used without irrigation, and a portion of the remainder is supplied with water raised from wells by means of steam power. Thus grape vines, and fruit, shade, and ornamental trees are now growing upon the college campus. We shall soon be able to report upon the feasibility and value of this project.

A large amount of entomological work has been done which promises results of the greatest practical value to the horticulturist and agriculturist. It has been demonstrated that New Mexico is comparatively unworked in this direction, and emphasizes the great value of such work in the Territory at large, in order that our injurious insects may be recognized, and our farmers and fruit-growers warned against them.

Nine bulletins have been issued on topics of interest to farmers, and more are in preparation. Students of the college have the means of becoming educated in these most fascinating and promising occupations.